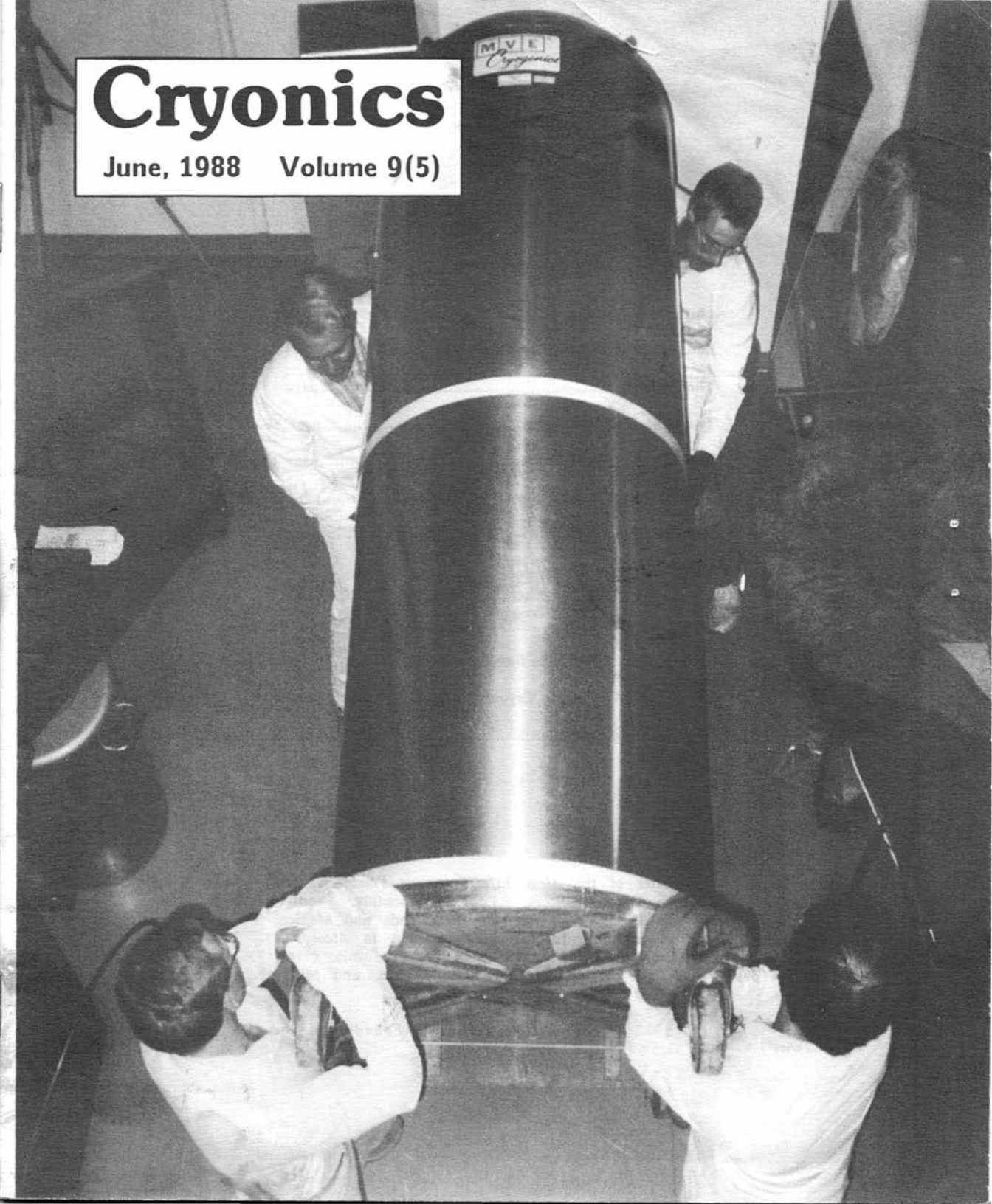


Cryonics

June, 1988 Volume 9(5)



Editorial Matters.....	page 1
Long-Time Alcor Member Enters Biostasis.....	page 2
The Fallout.....	page 13
The Door Into Nowhere.....	page 16
And Clifford Simak Passes.....	page 17
Turbine Blood Pump Shows Promise.....	page 20
Updated Emergency Instructions.....	page 21
Alcor Discussion Group, A.K.A. Cryonics Society Of New York.....	page 25
Letters To The Editors.....	page 26
LIFE Against DEATH In San Francisco.....	page 27
The Death Of Death In Cryonics.....	page 30
Alcor Meeting Schedule.....	page 37

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EDITORIAL MATTERS

When last we left our intrepid band of cryonicists, they were being investigated amidst accusations of homicide and grand larceny... a lot's happened since then... a cryonic suspension, the Life Against Death Conference....

LONG-TIME ALCOR MEMBER ENTERS BIOSTASIS

by Mike Darwin

On May 8, 1988, a long-time cryonicist and Alcor member was placed into whole-body cryonic suspension at Alcor's Riverside, California facility. The patient was a 72-year-old man with a long history of arteriosclerosis and congestive heart failure. In order to protect the privacy of the member's family, he will be referred to in this article by his first name only, which is Bob. What follows is a nontechnical account of the suspension, and then an article about some of the political consequences of it.

* * *

It had been a long week and it was turning into a long weekend. Alcor Florida Emergency Response Team member Bill Faloon hadn't slept for over 24 hours when at 12:10 AM on the morning of May 8th his phone rang. On the other end of the line was Bob's 17-year-old son Steve, who informed Bill that his father had suffered a cardiac arrest a few minutes prior to his placing the call. Steve told Bill that the paramedics had been called and that he had already packed his father's head in ice from a supply he had purchased in anticipation of his father's impending ischemic coma (so-called "clinical death").

Background

Bob had been in and out of the hospital for congestive heart failure a number of times during the preceding months, and had been hospitalized three times in the preceding week for discomfort and chest pain secondary to end-stage heart failure. He wanted no heroic resuscitative efforts, and in fact made the decision to experience legal death at home with his family in a nonmedical setting, fully aware of the risks that would expose him to. In the weeks prior to his ischemic coma, I had repeatedly spoken with Bob and explained the risks involved. Bob lived over an hour and a half by freeway from the nearest cryonicist with rescue equipment and skills.

Bob wanted very much to be with his family until the "end", since this was the last opportunity he would likely have to be with them (they are not cryonicists). Bob thus was willing to accept the virtual certainty that he would suffer a long period of ischemia.

I first met Bob in April of 1980, and I had repeatedly urged him to establish a professional relationship with a local physician -- someone who would be able and willing to sign a death certificate or speak to the medical examiner (ME) about Bob's prior history of severe heart disease and thus prevent Bob from becoming a "coroner's case" (and as a result being subject to the risk of autopsy and the certainty of a long delay until suspension could begin).

Bob didn't do this. No doubt part of the reason was that he had been assured by the hospital where he was being treated that the outpatient physician who was seeing him would sign the death certificate....

Ischemic Coma

Unfortunately, Bob experienced cardiac arrest on a Sunday morning. The physician who had seen him last could not be reached and the Emergency Room physician refused to sign the death certificate. The paramedics contacted the police and Bob became a medical examiner's (ME) case (i.e., coroner's case; Dade County uses a medical examiner rather

than a coroner).

When the police arrived they instructed Steve to take the ice off his father's head, which he refused to do. They also told Bob's wife Deborah that there would be an autopsy. Despite badgering from the police, Steve steadfastly refused to remove the ice and Deborah told the detectives in no uncertain terms that there would be no autopsy. The police left things as they were until the ME's people arrived a few minutes later.

Fortunately, Bill Faloon had met with the Dade County Medical Examiner some weeks in advance of Bob's ischemic coma and explained the situation with respect to Bob's terminal condition and his wish to be placed into suspension -- and succeeded in enlisting the ME's cooperation.

Thus Bill was on the phone to the ME within 10 minutes of the time he was notified that the ER physician was refusing to sign the death certificate. The ME agreed to get out of bed and be at the county morgue by 6:30 AM to meet with Bob's family and arrange his release. Meanwhile, Bob was transported to the ME's office *with his head packed in ice*, and he was then placed under refrigeration at 4°C.

Cooperation from the ME's office was excellent. They performed an intracardiac puncture on Bob (to draw blood for a toxicology screen), briefly questioned Deborah and Steve, contacted the hospital for a sign-off on Bob's medical records, and released Bob to the Alcor transport team at 10:00 AM.

The transport team, consisting of Bill Faloon, Greg Strom, and Glen, Marc, and David Tupler, placed Bob in a specially prepared shipping container and packed him in water ice. At 2:00 PM Florida time, less than 14 hours after the start of his ischemic coma, Bob was a plane headed for Los Angeles International Airport (LAX), accompanied by his wife and daughter.

Readying Alcor Riverside

Members of the Los Angeles Area Suspension Team were scattered across the Los Angeles basin when the call came in at 9:44 PM PDT. Within minutes of Bob's cardiac arrest, I was reached at a wedding reception I was attending in Pasadena, and other members of the team were quickly contacted thereafter. As soon as it was clear that Bob was going to be an ME case, a decision was made to carry out his perfusion here in Southern California. This decision was made so that while efforts were being made to obtain his release from the ME, the suspension team could assemble in Riverside to begin mixing perfusate and preparing the facility for a suspension. Thus no additional time would be lost flying California team members to Florida: critical team members who would arrive in Florida without sleep and *still* have to confront the 12 to 18 hours of preparation that would be required to get the facility ready for a suspension.

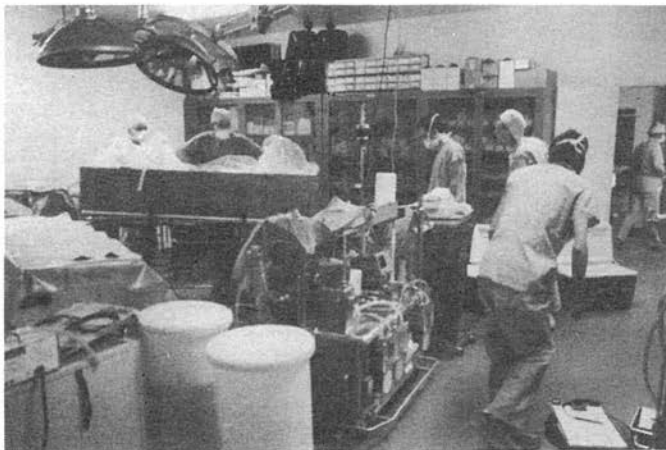
By the time Bob's plane arrived at LAX, preparations at Alcor Riverside were well underway. Most of the staff had arrived and approximately half of the 120 liters of perfusate required for a whole body suspension had been prepared. Meanwhile, at LAX Arthur McCombs and I were standing by to meet Bob's wife and daughter and pick Bob up from the air freight office as soon as he was removed from the cargo hold of the plane.

As soon as Arthur and I had Bob situated in the Cryovita van, we opened the transport container and established that the ice packs refrigerating Bob did not need to be replenished with the fresh supply of ice we had brought with us. Very little of the transport ice had melted, which indicated that Bob had cooled a substantial part of the

way towards 0°C in the ME's morgue before being released to the Alcor Florida team -- a good sign!

Bob was then driven to Riverside for cryoprotective perfusion and deep cooling. His deep pharyngeal temperature was a reassuring 2.1°C when he rolled in the door at 8:55 PM PDT. Bob was then almost immediately positioned on our bed scale and a preprocedure weight of 65.3 kg was obtained. For several years the utility of being able to weigh suspension patients *during* perfusion has been discussed. A decision had been made some months prior to Bob's ischemic coma to use our hydraulically adjustable bed scale as an operating table and to carry out the entire perfusion on the bed scale. (This was one of the allegedly "stolen" items which UCLA had returned to us only a month before!)

* * * * *



Bob arrives at the facility and the shipping container is opened in preparation for his transfer to the bed scale for weighing and perfusion.



Bob is lifted from the ice-filled shipping container for transfer to the bed scale/operating table.

After his transfer to the bed scale/operating table, Bob is repacked in ice and prepared for surgery.



Bob, immediately before the beginning of surgery.

* * * * *

Cooling Protects

During Bob's initial assessment when he was being weighed, prepped for surgery, and temperature probes were being placed, a truly remarkable observation was made. Bob's head, neck, biceps, and forearm muscles were not in *rigor mortis*, while his leg and abdominal muscles were in full rigor. This was surprising because it is the smaller muscles of the head, neck, and arms which are normally the first to go into rigor and the larger muscles of the thigh and calf which are the last. Muscles enter rigor as a result of metabolic exhaustion -- in other words, when they use up all of their available energy stores. Smaller muscles have less metabolic reserve and so enter rigor sooner. Typically, rigor starts with the muscles of the eyes and proceeds in a wave-like action down the body. Apparently Steve's aggressive efforts at packing Bob's head and neck in ice (and his prompt refrigeration thereafter) had protected these tissues (and probably to a great extent the brain as well) from metabolic exhaustion. Complete absence of rigor in the head and neck after 24 hours of cold ischemia is nothing short of incredible! Steve deserves tremendous thanks for his efforts.

Surgery Begins

An hour and 25 minutes after his arrival in the facility, surgery to open Bob's chest and connect him to the heart-lung machine was begun. The surgery to cannulate Bob's aorta and right heart for blood washout and cryoprotective perfusion proved enormously difficult. Bob's chest was a mass of adhesions and scars from two previous bypass operations. It took chief surgeon Jerry Leaf and assistant surgeon Brenda Peters over three hours of painstaking and careful dissection to even reach and identify major anatomical structures such as the heart, aorta, and superior and inferior vena cava. Bob's wife later remarked that it took the team that operated on him for his second bypass surgery even longer to clear his heart of scar tissue in preparation for his second set of bypass grafts.

Working in parallel with Jerry Leaf, I opened a burr hole in Bob's head to allow for visualization of the cerebral cortex surface to facilitate verification of blood washout and adequate cerebral perfusion during the introduction of cryoprotectant.

* * * * *



Surgery to open Bob's chest and connect him to the heart-lung machine begins.

Mike Darwin, with assistance from Carlos Mondragon, begins surgery to open the burr hole in Bob's skull.



Difficulties are encountered in identifying critical anatomical structures, due to extensive scarring from two bypass operations.



* * * * *

Perfusion

At 2:14 AM PDT on the morning of May 9, blood washout commenced. Washout proceeded with extreme difficulty due to the massive clotting that was present. Initially the right atrium was left open to allow large clots to be vented into the operative field and sucked out (along with draining venous perfusate) with a wide-bore suction line. Once the largest of these clots were expelled, a standard venous return cannula was placed in the right heart and perfusion was continued. Clotting was so severe that only with extensive manipulation of the venous catheter was it possible to obtain any venous flow whatsoever. Early venous drainage was a semisolid mass of viscous and partially clotted blood. Blood washout took nearly two hours of low flow, stop and go perfusion.

At 4:37 AM cryoprotective perfusion began using a 5% glycerol solution in the new sucrose-HEPES perfusate. Hydroxyethyl starch was present in 5% concentration as the colloid (used to minimize fluid accumulation (edema) between cells). The cryoprotective ramp was begun at 4:41 AM using the connected reservoir system developed by cryobiologist Dr. Gregory Fahy. This system allows for very smooth "linear" increase in glycerol concentration and eliminates much of the inefficiency experienced with the previous system. An adjunct to this system was a "predictive" interactive computer program written by mathematician Dr. Mike Perry. The program is a model of the patient and perfusion system and allows a range of variables to be plugged in and dynamically altered, such as the patient's weight, the desired terminal glycerol concentration, the perfusate flow rate, glycerol concentration in the reservoir, and so on...

Dr. Fahy's system and Dr. Perry's program both functioned flawlessly. The patient's glycerol introduction ramp was smoothly duplicated by Mike Perry's program. All who saw it were impressed with the ability of Mike's program to predict the course of the perfusion. The final proof of this is that 80 liters of perfusate were mixed (using Mike's program and the patient's preperfusion weight) in anticipation of reaching a terminal concentration of 3.5 M glycerol. Bob's actual terminal glycerol concentration (as measured in the venous effluent) was 3.6 M (excellent!) and only 10 liters of glycerol concentrate remained at the termination of perfusion.

The extensive ischemic clotting which Bob had experienced prior to his arrival proved a major barrier to good systemic perfusion. Bob's heart, lungs, brain, head and arms

perfused well, but his external abdomen and lower extremities did not perfuse at all. A major complicating factor was probably Bob's extensive femoral atherosclerosis. The femoral arteries which supplied Bob's legs were severely narrowed prior to his ischemic coma (by 70% on the right leg and 50% on the left) and these badly atherosclerotic vessels were probably further occluded by clots which effectively prevented perfusion of his lower extremities. To what degree, if any, perfusion of Bob's abdominal viscera occurred we have no way of knowing as we did not perform a laparotomy.

Good Brain Perfusion

At 8:55 AM on Sunday morning perfusion was discontinued. Bob's face was markedly edematous and he had experienced a perfusion-associated weight gain of 8.5 kilos (18.7 pounds). Despite his fulminating pulmonary edema (several liters of fluid were suctioned from Bob's lungs during perfusion) and peripheral edema, Bob's brain had remained relatively constant in volume throughout the procedure -- with the cortical surface bulging only slightly against the burr hole at the conclusion of perfusion. Blood washout of the brain was judged to be excellent and the cortical surface was a uniform pearly white at the conclusion of perfusion. Perfusion of the face and neck was also judged to be very uniform as evidenced by both the glycerol induced ambering of his skin and the uniformity of the edema. [Note: Patients without a long period of ischemia complicated by clotting do not experience edema during glycerol perfusion. However, in both human and animal models post-ischemic perfusion complicated by clotting results in massive edema.]



Reagent-grade glycerol, which is used to minimize freezing injury.

Cooling To -79°C

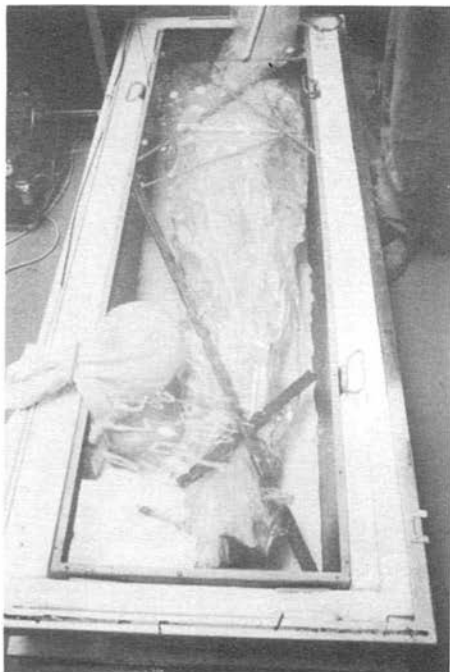
At 10:15 AM, ice packs were removed from Bob and he was placed inside two large plastic bags. He was then submerged in a tank of silicone oil (Silcool) which had been precooled to -10°C . His rectal and pharyngeal temperatures were 6°C and his brain surface temperature was 9.0°C at the start of cooling to dry ice temperature. The Silcool bath was outfitted with four small centrifugal circulating pumps to increase the efficiency of heat exchange. By maintaining a 10°C to 15°C differential between surface and core temperatures, Bob was slowly cooled to -79°C over the next 35 hours by gradual addition of dry ice to the Silcool bath.

Long Term Storage

On Thursday, May 12, a team of Alcor members consisting of Hugh Hixon, Max O'Connor, Mike Perry, Jerry Leaf, Scott Greene, Arthur McCombs, and myself assembled at the facility to transfer Bob from dry ice to liquid nitrogen storage. Saul Kent and Steve Harris acted



Protected by two plastic bags, Bob is submerged in the Silcool bath for cooling to -79°C .



Bob in the Silcool bath. The bath was precooled to -10°C , and dry ice (in the cloth bag) is added to begin cooling to -79°C .



Mike Perry and Arthur McCombs (background) begin monitoring Bob's descent to dry ice temperature as Mike Darwin (left) looks on.



The bed scale, with the sleeping bag in position, is ready to receive Bob. (Mike Darwin (R) and Hugh Hixon (L))



The storage dewar is rocked down to load Bob in.



The sleeping bag and stretcher are precooled with liquid nitrogen.



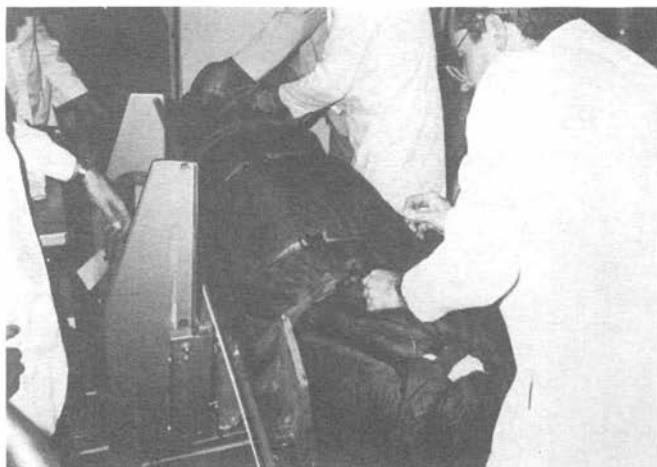
Max O'Connor (R) and Arthur McCombs (L) discuss the strategy for lifting the dry ice filled tank holding Bob out of its insulated chest and onto dollies.

as photographers, and Bill Seidel videotaped portions of the transfer. The Alcor dual-patient cryogenic dewar was rocked into horizontal position after being pre-cooled to approximately -100°C . The metal tank used for Silcool/dry ice cooling (and now drained of Silcool and completely filled with dry ice) was lifted out of its insulating container and transferred to two rolling dollies so that it could be wheeled into position in the central work area of the facility.

The stretcher and sleeping bag which were to receive Bob were then positioned on the bed scale and were pre-cooled with liquid nitrogen. When everything was ready, the dry ice surrounding Bob was very rapidly removed by the seven transfer team members working in parallel. The outer oil-soaked plastic bag surrounding Bob was then slit lengthwise, exposing the dry (i.e., oil-free) inner plastic bag and the pick-up straps which had been placed on Bob prior to his cooling to -79°C . Arthur, Scott, Max, Mike, Hugh, and I then lifted Bob from the bed of dry ice and hoisted him smoothly onto the stretcher and into the sleeping bag. Jerry Leaf trimmed away excess plastic bag at Bob's head (and managed the mare's nest of thermocouple leads) while a standard pre-cooled neurocan was slipped over Bob's head for additional thermal and mechanical protection during long-term storage.



Bob is lifted from the dry ice cooling tank onto the bed scale platform for final weighing and insertion in the sleeping bag.



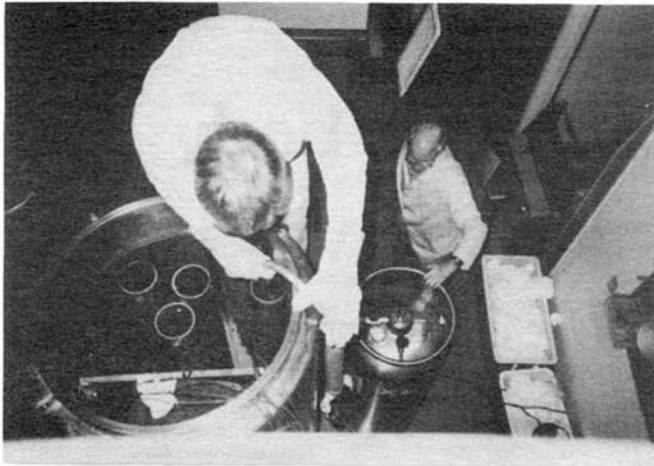
In the sleeping bag, Bob is secured to the stretcher prior to being placed in the dewar.

The sleeping bag was then completely closed and Bob was carried over to the storage dewar and slid inside until his stretcher docked with the tabbed base plate at the far end of the unit. The entire assembly was then rocked into an upright position using Hugh Hixon's dewar rocker (a design idea originated by Trans Time's John Day). Once the dewar was upright, it was loaded with four aluminum cylinders each 4" in diameter and 6'6" tall. Two of these cylinders were filled with liquid nitrogen and a specially fabricated lid with a built-in circulating fan was used to close the unit. The total temperature rise Bob experienced during the entire transfer operation was 1°C, measured by two external probes.



Mike Darwin hitches a ride on the rocker as the dewar containing Bob is rocked upright.

By controlling the rate of addition of liquid nitrogen and the fan speed a reasonably homogenous and controlled temperature descent to -196°C was carried out over the next four days. While this system worked far better than the previous one of just slowly filling the unit with liquid nitrogen (which results in a very large head-to-toe temperature difference), it was far from satisfactory. The fan unit repeatedly overheated, and the seal between the lid and the dewar was inadequate (resulting in excessive heat loss and ice pumping as the fan introduced warm room air into the dewar).



Reservoir pipes in the dewar are filled with liquid nitrogen by Mike Darwin.

* * * * *

However, the worst drawback was the lack of automation. Since control of temperature descent was completely active this meant that *someone had to sit there and operate the system every minute for eight days!* This was a difficult burden and it was borne most heavily by Dr. Perry, and to a lesser but very significant extent by Max O'Connor, Hugh Hixon, and Scott Greene. An urgent priority for the future is an active process controller which both dynamically controls the temperature descent while monitoring and logging that descent. Such units are reasonably inexpensive and they are now almost off-the-shelf items (coasting about \$2,000). One nightmarish experience with round-the-clock, minute-by-minute active control of cooling a patient extending over an eight-day period is enough to try the resolve of the hardest of men! The boredom alone is incredible.

On May 17th, the dewar housing Bob was filled to the top with liquid nitrogen and Bob entered long term cryogenic storage. He remains submerged in liquid nitrogen in the Alcor facility in Riverside -- waiting. Bob's problems with cryonics are probably now virtually over. The rest is up to us. Now we're the ones with problems to worry about.

* * * * *

THE FALLOUT

by Mike Darwin

Per his request, the Riverside County Coroner was notified as soon as Bob entered Riverside County. In fact, the Riverside County Coroner's Office had been notified of Bob's impending suspension several months prior to his ischemic coma.

On Tuesday, the 10th of May, the Coroner's office was provided with a copy of Bob's death certificate (per Alcor's policy) and I attempted to obtain a permit for disposition of human remains (known as the VS-9) from the Vital Statistics Division of the California Department of Health Services. I was informed by Virginia Whitney of Vital Statistics' Riverside office that as of 1981 her office had received instructions *not* to issue VS-9's for cryonics patients. "Why not?" I asked. Her answer was that we were "...not a licensed bank or storage facility, not a cemetery, and not a mortuary and therefore were

Riverside Press-Enterprise, Saturday, May 21, 1988

Alcor freezes body without county OK

By DON BABWIN
The Press-Enterprise

The Riverside cryonics laboratory under investigation in the death of an 83-year-old woman whose head was surgically removed and frozen last December froze another body May 8 — over the objections of county health officials who refused to issue a permit to store the body.

"It looks pretty convincing that they broke the law," David Mitchell, the chief of the Office of State Registrar, whose office advised the county health department not to issue the permit.

Alcor president, Carlos Mondragon defended the cryonic suspension of an elderly man who died of heart disease in Florida and was flown to California. "Just because something is not permit-

ted doesn't mean it is forbidden." "From what our attorneys tell us, we've discharged all of our legal obligations," said Mondragon.

Mondragon said the firm went to the health department and was denied the permit because there is "no box for cryonics" on the forms that the county requires be filled out.

Mitchell said if the cryonics people want to change the law about disposing and storing remains they should be working in that direction. But, he said, "The bottom line is state law doesn't authorize cryonic suspension."

Virginia Whitney, of the health department's vital statistics section, said the laboratory was not licensed to receive and dispose of remains. "If they have a

body there in (cryonic) suspension they are in violation of the (state's) health and safety code," she said.

Supervising Deputy Coroner Dan Cupido said it was the coroner's contention at the time of the investigation into Dora Kent's death "and it is still our contention that they're violating the law" by keeping the frozen remains at the facility.

Alcor has been under investigation since December when the coroner's office learned of Kent's death. The coroner's office has classified the death as a homicide, saying the woman was killed by a lethal dose of barbiturates.

The case has been turned over to the Riverside Police Department for investigation.

* * *

not entitled to have or hold human remains."

When I asked how Alcor could become licensed (something cryonicists have been asking the PHS for over 10 years!) I was curtly told by Ms. Whitney that she didn't know. Her abrupt manner told me something else: she didn't care, either. She then ended the conversation by abruptly strolling off to her office.

We later learned that the American Cryonics Society (ACS) and Trans Time (TT) were having similar problems with their suspension of ACS member Violet Jones in Northern California.

For two weeks following Bob's suspension there was relative quiet. Then reporters began calling wanting to know about the "illegal" suspension we had just done and if we knew about the District Attorney being handed fresh misdemeanor charges against us for prosecution by the Riverside PHS (failure to have a VS-9 on a body is a misdemeanor). Calls to the County of Riverside and State of California PHS confirmed the press reports. There was then a round of nasty stories in the press -- none of which told our side of it or pointed out that museums with mummies, tissue banks, and a plethora of physician's and chiropractor's offices have human bodies or body parts and do not have VS-9's.

Calls to ACS/TT lawyer Jim Bianchi and a contact we have in the Orange County PHS confirmed the 1981 memo date and also the reason for it. To our surprise it was *not* the Dora Kent case but the Chatsworth debacle that resulted in the current "crisis". It seems that after Chatsworth the PHS decided to issue no more VS-9's for cryonics. If a public health menace like abandoned, rotting bodies via cryonics was going to occur, (as it did in Chatsworth) it was going to do so without the "blessing" of the California PHS in the form of a VS-9. No egg on their faces, thank you ma'am.

Don Cavallo of the Riverside PHS and David Mitchell of the State PHS both insisted that Alcor was breaking the law by suspending people and that cryonics is not a permitted form of disposition under California law. This is interesting since it isn't *prohibited* anywhere in California law either.

To clarify all this, the PHS argument goes something like this:

1) The law says you must have a VS-9 on any human remains (including "parts" of people like neuropatients) within a 5-day period of either death or the arrival of the remains in the state of California.

2) The law does not specify cryonic suspension as a form of "interment" or "disposition" which a VS-9 can be issued for (in bureaucratic parlance: there is no box on the form for them to check). Since the law was last amended in 1965, two years prior to the first cryonic suspension, this is not surprising.

3) Since there is no box for them to check off and no law which allows them to regulate cryonics (which is neither disposition or interment and which the California State Attorney General's opinion says isn't a tissue bank either) they cannot issue a VS-9.

4) Since they cannot issue a VS-9 we are breaking the law.

5) Since we are breaking the law we are criminals engaged in an illegal act and we must stop engaging in it.

As Dr. Betty Keiswetter of the PHS licensing staff points out: "there is no class of licensing which a cryonics facility would qualify for." Dr. Keiswetter also pointed out that tissue banks are not licensed in the State of California nor are they regulated and they have human remains and tissues too. They are not required to file VS-9's and they are not accused of lawless conduct for failing to have them! As the accompanying newspaper articles point out -- no such luck for us cryonicists.

What's Next?

Naturally we placed some calls to our attorney, and followed it up with a meeting. He tells us these folks are "up in the night". He got a nasty glow in his eyes. This reassured us somewhat.

We have not been charged yet with failure to have a VS-9(s) (or with anything, for that matter) nor have we been ordered to turn over our patients for conventional interment. Nevertheless, something *is* going to happen.

A call from the PHS to the Riverside Zoning Board destroyed our chances for quick

issuance of our Conditional Use Permit (CUP) and caused the Zoning Board to move for a 90-day continuance on our request.

Life in cryonics continues to be interesting in Riverside and elsewhere.... Some days, Bob, I think you're the lucky one.

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THE DOOR INTO NOWHERE

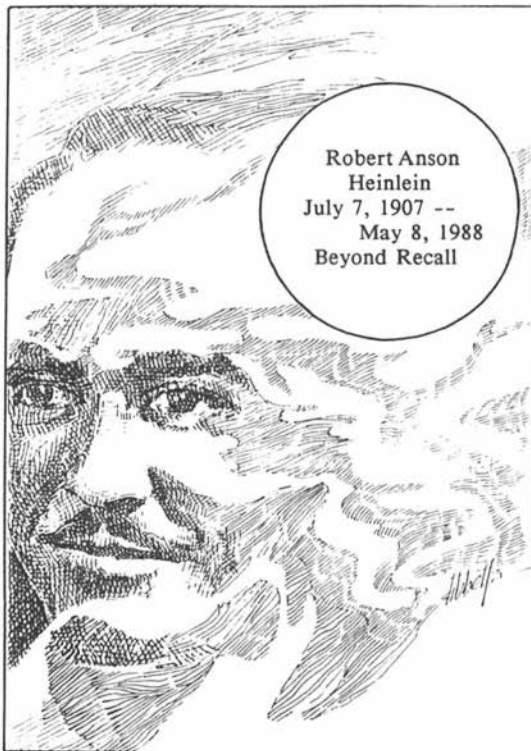
by Mike Darwin

Shortly after Bob began his temperature descent, Saul Kent, who was serving as staff photographer, showed up and announced that the radio was reporting the death of another Bob -- the legendary science fiction author Robert Heinlein. Heinlein apparently died in his sleep at his Santa Cruz condominium about the same time Alcor's Bob did. Heinlein was 80 years old. It was an odd situation. On the table in the operating room was a man who was no great science fiction author or technical visionary. He did not inspire millions with his words and he did not write about interstellar travel or suspended animation. He was "only" a retired TV repair shop owner and devoted family man whose global "importance" and range of influence were trivial compared to Heinlein's.

What an extraordinary and amazing situation. An average, anonymous, middle-class man undertakes a desperate voyage across time and space to await rescue by physicians perhaps yet unborn, while the "Dean of Science Fiction and America's foremost visionary" is cremated and his ashes scattered from a Coast Guard vessel.

Reality *is* stranger by far than science fiction.

Despite their differences both men had a number of things in common. Both had heard of cryonics and both had received *Cryonics* magazine (Heinlein had several gift subscriptions over the years and received the magazine until his wife asked that his name be removed from the mailing list). Both men had also suffered a long decline in health and knew that death was both inevitable and near. Both also had the intellectual and financial resources to arrange for suspension.



By almost any objective assessment Heinlein was in the superior position to have understood and appreciated cryonics. He was a man of extraordinary vision and imagination and he had written about suspended animation, specifically discussing it in a medical rescue context in his classic 1957 novel *The Door Into Summer*. He even understood that extension of the human lifespan and the expansion of humanity into space was not only likely but inevitable. Why then *didn't* Heinlein opt for cryonics and why *did* the other Bob?

The first part of that question is probably now impossible to answer, although those who knew Heinlein and attempted a dialogue with him about cryonics may be able to offer some thoughts (and are herewith invited to do so).

The second part of the question is a bit easier. Alcor's Bob was a man who simply loved life. Whenever I spoke with Bob during his numerous health crises, he was always calm and very matter of fact. Life was good, he enjoyed being alive, and he wasn't by any means through with it. Death, by contrast, had nothing to recommend it. Cryonics was the only option left. One thing I can say with certainty: Bob was not consumed with any overwhelming fear or anxiety about death. He simply wanted to avoid it and cryonics looked like a reasonable alternative. In short, Bob's absolute, top drawer priority was staying alive. Staying alive even if it meant leaving this time, this place, his friends, and even his wife and children behind.

When discussing Bob's suspension with some science fiction fans recently one of them remarked "what a tragedy that it wasn't Robert Heinlein lying on that table instead of the other guy." It's certainly true that our Bob was no Robert Heinlein. The world will miss Heinlein's clever story telling and his extraordinary vision. His death *is* a genuine tragedy. But it would have been far greater tragedy if the two had miraculously switched places at the last minute. Indeed, the truth of the matter is that the apparently "anonymous" and "average" Bob who *chose* to lie on that table was anything but average. Why? Because he had several things going for him that Bob Heinlein didn't: courage to confront the future for better or worse, an enormous sense of self-worth, and a deep realization of the preciousness and value of being alive.

Extraordinary writing skills, technical vision -- these will likely be things available to anyone almost for the asking in the future. They are worthwhile things, but they are not core values, not the fundamental things required to enjoy and hold on to life. The other Bob, the one waiting quietly in liquid nitrogen at Alcor, may not have been an intellectual luminary or a great entertainer of the masses as Heinlein was. But he had and still has something Heinlein hasn't a chance in the world of now: the prospect of immortality in an open ended world of incredible possibilities. For he had the courage and the brains not to merely hear about about *The Door Into Summer*, but to actually step through it.

* * * * *

AND CLIFFORD SIMAK PASSES

by Mike Darwin

On my list of "topics to cover" for the June issue of *Cryonics* was another obituary for another great science fiction writer, Clifford Simak. Simak died in Minneapolis' Riverside Medical Center at the age of 83. His passing is noted here for several reasons,

not the least of which is that he was a talented and influential writer whose 1952 novel *City* was in large measure responsible for turning a 12-year-old midwestern boy named Mike Federowicz (a.k.a. Mike Darwin) onto the wonders of science fiction.

Two other reasons for mentioning Simak's passing also obtain: The first being that Simak wrote a novel specifically about cryonics called *Why Call Them Back From Heaven?* It is a rather grim portrayal of a world dominated by the cryonics "Forever Center", but it contains a clear exposition of cryonics, including a discussion of both Robert Ettinger and his *The Prospect Of Immortality* by name. It also includes one of the most inspiring and (hopefully) prescient quotes ever written about cryonics:

It was ridiculous, said Ettinger. It was a pity and waste and fraud. There was no need of death. There was a way to beat it.

Men had talked of it before, had speculated on it, but it was Ettinger who had said: Let us do something -- now!

Let's develop a technique by which those who die can be frozen and stored away against that day when the maladies of which they died can be treated medically. Then, when this is possible, revive the dead, wipe away the ravages of old age, banish the malignancy of cancer, repair the weakened heart, and give them all a second chance at life.

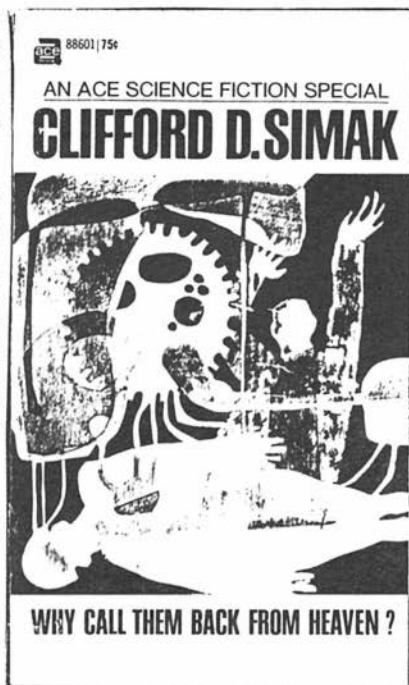
The idea had been slow to gain acceptance, had been ignored by all except a few, had gathered guffaws on television shows, had been treated gingerly by writers who did not want to identify themselves with the fringe of fanaticism.

Slow to gain acceptance, but it grew. It grew stubbornly as the dedicated few labored day and night to do the necessary basic research, to devise the technology that was necessary, to erect the installations, and to perfect the organization that would hold it all together.

The years went on and the idea crept into the consciousness of men -- that death might be defeated, that death was not an end, that not only a spiritual but a physical second life was possible. That it was there for those who wanted it, that it was no longer just a long-range gamble, but a business proposition with a good chance of success.

Still no one would say publicly that they were about to take advantage of it, for in the public image it was still a crackpot scheme. But as the years went on more and more made surreptitious contracts and when they died were frozen and were stacked away against the day of revival.

And each of those who were stacked away left in trust with the organization



built so painfully from nothing, the pittance or the fortune they had scraped together in their lifetime, to be invested until that time when they would be revived.

There had been a congressional inquiry in Washington, which had come to nothing, and a question had been raised on the floor of Commons, which likewise came to nothing. The movement was still regarded crackpot, but it had the virtue of being non-obnoxious. It did not push itself, it did not foist itself upon the public consciousness, it did no preaching. And while more and more it became a matter of private conversation and of public interest, it was paid no official heed, possibly because officialdom did not know just what attitude to take. Or perhaps because, like the ancient UFO squabble, it was too controversial to touch.

Just when it happened, or how it happened, or what brought about the realization, no one could tell -- but there came the day when it became apparent that the little movement of 1964, now called Forever Center, had become the biggest thing the world had ever known.

Big in many ways. Big in the hold it had on the public imagination, which, in many instances, now constituted a firm belief in not only the purpose of the program but in its capacity to carry out the program. Big in the participation in the program, with millions of frozen bodies stored away to await revival. And, perhaps most important of all, big in its assets and investments.

For all those millions who now lay frozen had left their funds with the Forever Center. And one day the world woke to find that the Forever Center was the largest stockholder of the world and that in many instances it had gained control of vast industrial complexes.

Now, too late, the governments (all the governments) realized they were powerless to do anything about Forever Center, if, in fact, they had wanted to do anything about it. For to investigate it, to license, to restrict it in any way would have been flying not only into the face of an entrenched financial position but also into the face of an awakened public interest.

The second reason is that one of the co-editors of *Cryonics*, the selfsame Mike Darwin who read *City* at the age of 12, met Clifford Simak in 1977 at Disclave, a science fiction convention in Silver Springs, MD, and had the opportunity to talk with him at some length about cryonics.

It was an interesting meeting. Simak was at once both fascinated and it seemed to me, a little repulsed by cryonics. I think he thought that cryonics might have some technical merit, but he was also a practicing Catholic and was no doubt strongly influenced by his religious beliefs and expectations. He was open minded about what I had to say and we had a pleasant chat followed by his handing me an autographed copy of *Why Call Them Back From Heaven?*

Like Heinlein, Simak certainly had the intellectual hardware and visionary capability to appreciate and



Clifford Donald Simak

August 3, 1904 --

April 25, 1988

Beyond Recall

understand cryonics. And like Heinlein, he was a marvelous talent. However, Simak differed from Heinlein in at least one important respect: unlike the characters in Heinlein's novels, Simak's characters were rarely heroic men or women of action. Rather, they were average people who brought their own modest abilities to bear in often trying and difficult situations. The *Los Angeles Times* obituary by Burt Folkart summed up Simak's writing career well:

"Many science fiction writers wrote of invincible supermen, but Simak wrote about common people in far-off places and distant times who, like contemporary man, suffer losses along with gains."

The story of an unassuming TV repairman from 1988 (or for that matter a soft-spoken Minneapolis newspaper reporter turned science fiction writer) who leaves friends and family behind to pursue immortality in the 22nd century could have been one Simak could easily have written.

It is also a tale he could have just about as easily have lived.

But that's another story... one that unfortunately never was and now never will be told.

* * * * *

TURBINE BLOOD PUMP SHOWS PROMISE

In the February, 1988 issue of *Cryonics* an article by Mike Darwin on *The Future Of Medicine* states: "An intermediate scenario would be the development of small, flexible impeller pumps that can be collapsed and passed through a large-bore percutaneous catheter through the femoral artery and into the abdominal aorta. Such a pump (acting much like the propeller on an outboard boat motor) could then be used to supplement CPR, perhaps providing 2-3 liters per minute of cardiac output."

The Thursday, May 5 issue of the *Riverside Press-Enterprise* carried a story from the New York Times News Service which indicates that widespread application of such a heart assist device may be only a few years away. The front page article documents the device's success in saving the life of the first person on whom it was tested; a 62-year-old Colorado man who was suffering from a rejection episode after a heart transplant.

The small catheter-mounted turbine, which is positioned in the aorta (the large artery which supplies the body with oxygenated blood) rotates at a rate of 25,000 times per minute and provides 3 to 4 liters per minute of cardiac output (just about the resting cardiac output of a normal adult). The device, made by Nimbus Medical of Rancho Cordova, California was implanted in the Colorado man at the Texas Heart Institute in Houston by Dr. O.H. Frazier, a pioneer in artificial heart and left ventricular assist device research.

The device, christened the Nimbus Hemopump, reportedly performed flawlessly and supported the patient without hemolysis or other blood damage until his own heart recovered sufficiently to support him. The device has the potential for widespread clinical application in saving the lives of tens of thousands of patients suffering from cardiogenic shock after a heart attack or from congestive heart failure. Reportedly design work is underway on a model which can be chronically implanted.

Mike Darwin reports that, sadly, he cannot be credited with clairvoyance on this one:

"I saw the device in use during an animal trial at a private, contract research lab in Northern California over a year ago and I was incredibly impressed by its performance. As soon as I saw it I felt it was going to be a real winner. Whether or not my envisioned use of the device in resuscitation settings will ever be realized remains to be seen."

The device reportedly will sell for about \$3000 when it is released for clinical application. Such a device could have real applications in cryonics where it could be used to provide quick and simple artificial circulation for suspension patients in cardiac arrest. And it might conceivably be available for cryonics applications prior to its clinical release since cryonics patients are legally dead and thus beyond the scope of FDA regulation.

* * * * *

UPDATED EMERGENCY INSTRUCTIONS

A number of Alcor Suspension Members who live remote from the Los Angeles basin have requested that we publish our current transport drug protocol so that they can make arrangements with their physician or HMO for its implementation in the event of their legal death. There have also been a number of requests for an "abbreviated protocol" that a physician could follow in a situation where extended cardiopulmonary support is not possible or where more than 60 minutes of ischemia (cardiac arrest) has occurred.

Several Suspension Members have already made arrangements with their physicians to administer transport medications and, since changes have been made in the protocol recently, it is appropriate that an updated version of the protocol be published.

We are happy to comply with these requests, but we wish to offer the following disclaimers and caveats:

This is the protocol which the Alcor Life Extension Foundation intends to use to stabilize and transport its Suspension Members after pronouncement of legal death by a physician. This protocol has no proven efficacy in minimizing or eliminating ischemic injury and is speculative at best. Members of a cryonics organizations other than Alcor should contact their own organization for that organizations' transport protocol.

* * *

EMERGENCY INSTRUCTIONS FOR STABILIZATION OF ALCOR BIOSTASIS PATIENTS

Introduction

Biostasis is a low temperature preservation process applied to patients after they have exhausted the resources of contemporary medical care and have been pronounced legally dead. The process of placing a patient into biostasis involves prompt "post-mortem" cardiopulmonary support (to minimize ischemic damage) concomitant with induction of hypothermia by surface and/or blood cooling, treatment of the patient with agents to minimize freezing damage, and cooling to ultra low temperature for continued long term care. The ultimate objective of biostasis is the restoration of life and health to the patient at some point in the future when biomedical technology has reached a degree of

sophistication equal to reversal of the cause of death as well as the injury which results from the application of current, unperfected preservation techniques.

Stabilization Protocol

If the patient is pronounced dead (i.e., resuscitation efforts have failed or were deemed medically inappropriate), we request you undertake the following steps:

1. Cardiopulmonary resuscitation (CPR): *Immediately* begin administration of 100% oxygen via face mask or (preferably) endotracheal tube using positive pressure ventilation. Begin sternal compression.

If a mechanical heart-lung resuscitator (such as the Thumper) is available, install it. Our resuscitation equipment will be substituted for yours before removal of the patient from your facility.

Continue CPR during the administration of all medications listed below.

Do not defibrillate the patient.

2. Establish and maintain a patent intravenous line (preferably a subclavian or peripheral cut-down) for administration of all medications. Patency of the IV should be maintained by filling the catheter with heparinized saline (2,500 units of heparin per cc) or maintaining TKO flow of normal saline or other solution *which does not contain dextrose*.
3. Administer potassium chloride 1 mEq/kg, IV push to reduce cerebral metabolic demand.
4. Administer deferoxamine HCl (Desferal) 2 g, IV push to scavenge free iron and thus reduce ischemia-induced free radical damage.
5. Administer tromethamine (THAM), 250 mg/kg, IV (give 200 cc of 0.3 molar THAM rapidly, then set rate of infusion at 30 drops per minute) to combat acidosis. THAM will usually be available from the Thoracic Surgery or Perfusion Department of the hospital.
6. Administer heparin, 420 IU/kg, IV push for anticoagulation.
7. Administer verapamil, 0.30 mg/kg, IV push to prevent cerebral vasospasm and protect against intracellular calcium loading and cerebral "no-reflow".
8. Administer mannitol, 2 g/kg, high-flow IV infusion to reduce ischemia-induced free radical injury and prevent cerebral edema.
9. Concomitant with the above begin surface cooling by packing the patient in bags of crushed or small-cubed ice. Particular attention should be given to packing the head, neck, axillary, and femoral areas in ice. In situations where the supply of ice is limited, concentrate on cooling the head and neck.
10. Administer metubine iodide (Metubine), 0.07 mg/kg or succinylcholine 0.80 mg/kg, IV push to inhibit any possible shivering.
11. Erythromycin (Erythrocin), 1 g, (or if unavailable, Keflex 1 g), IV push to inhibit microbial overgrowth.

12. Immediately prior to the administration of dextran-40 (step 13, below), administer 1.5 g of dextran-1 (Promit) IV push to prevent possible anaphylactic reaction to dextran-40. Do not delay the start of the dextran-40 infusion longer than 15 minutes after the Promit has been given.
13. Administer dextran-40 (Rheomacrodex) *in normal saline only*, 250-500 cc via high flow IV infusion to minimize capillary sludging and support blood pressure (in volume depleted patients). *Do not use Rheomacrodex solutions containing dextrose.*
14. Continue CPR for at least 10 minutes after the injection of the last medication.
15. It is highly desirable to continue cardiopulmonary support until a pharyngeal temperature of 15°C or a rectal temperature of 25°C has been reached.
16. If a nasogastric tube is in position, it should be used to administer 250 cc of Maalox, Riopan, or Titrilac in order to neutralize gastric hydrochloric acid and eliminate the risk of erosion of the gastric mucosa and hemorrhage during subsequent cryoprotective perfusion.
17. The eyelids should be closed with tape to prevent corneal dehydration.
18. Clamp *but do not remove* any drainage tubes, catheters, or IV lines in the patient.
19. Completely pack the patient in water ice for transport to our facilities.
20. *It is of critical importance that the patient not be subjected to freezing temperatures (i.e., those below 0°C (32°F)).* This includes, but is not limited to storage in a hospital morgue "cooler" at a temperature below 4°C (34°F), temporary storage in an unheated ambulance, hearse, or aircraft during transport when the ambient temperature is below freezing, or the use of refrigerants such as dry ice or water ice/salt mixtures for cooling or transport. If there is any question about the accuracy or reliability of mechanical refrigeration equipment, it should be checked frequently on a manual basis with an accurate thermometer.
21. If you need further information call the emergency number listed below and ask to be connected with the Emergency Rescue Technician on call.

EMERGENCY PHONE #: (714) 736-1703

Thank you for your cooperation.

* * *

An abbreviated protocol for use in situations where cooperation is minimal or where the interval between the start of cardiac arrest and the discovery of the patient is greater than 60 minutes is as follows:

ABBREVIATED EMERGENCY INSTRUCTIONS FOR STABILIZATION OF ALCOR BIOSTASIS PATIENTS

Introduction

Biostasis is a low temperature preservation process applied to patients after they

have exhausted the resources of contemporary medical care and have been pronounced legally dead. The process of placing a patient into biostasis involves prompt "post-mortem" cardiopulmonary support (to minimize ischemic damage) concomitant with induction of hypothermia by surface and/or blood cooling, treatment of the patient with agents to minimize freezing damage, and cooling to ultra-low temperature for continued long term care. The ultimate objective of biostasis is the restoration of life and health to the patient at some point in the future when biomedical technology has reached a degree of sophistication equal to reversal of the cause of death as well as the injury which results from the application of current, unperfected preservation techniques.

Stabilization Protocol

If the patient has been pronounced dead and has experienced a period of more than 60 minutes of normothermic cardiac arrest (in the absence of any cardiopulmonary support) and there is no rigor mortis present (if rigor is present *do not* administer any IV medications and proceed to #7 below) we request that you undertake the following steps:

1. Carry out sternal compressions *without ventilating the patient* at a rate of 60 per minute *during* and for 5 minutes *after* the administration of the following medications:
2. Heparin, 800 IU/kg IV push for anticoagulation.
3. Streptokinase (Streptase) 30,000 IU/kg IV push to a maximum dose of 2,250,000 IU to reverse/inhibit ischemia related clotting.
4. Deferoxamine (Desferal) 2 g, IV push to scavenge free iron and minimize ischemia induced free radical damage.
5. Verapamil 0.30 mg/kg, IV push to reduce ischemia-induced intracellular calcium loading.
6. Erythromycin (Erythrocin), 1 g, (or if unavailable Keflex 1 g), IV push to inhibit microbial overgrowth.
7. Cool the patient as quickly as possible by completely packing the body in bags of crushed or small cubed water ice. In situations where the supply of ice is limited, concentrate on the head.
8. If a nasogastric tube is in position it should be used to administer 250 cc of Maalox, Riopan, or Titralac in order to neutralize gastric hydrochloric acid and eliminate the risk of erosion of the gastric mucosa and hemorrhage during subsequent cryoprotective perfusion.
9. The eyelids should be closed with tape to prevent corneal dehydration.
10. Clamp *but do not remove* any drainage tubes, catheters or IV lines in the patient.
11. Completely pack the patient in water ice for transport to our facilities.
12. *It is of critical importance that the patient not be subjected to freezing temperatures (i.e., those below 0°C (32°F)).* This includes, but is not limited to storage in a hospital morgue "cooler" at a temperature below 4°C (34°F), temporary storage in an unheated ambulance, hearse, or aircraft during transport when the ambient temperature is

below freezing, or the use of refrigerants such as dry ice or water ice/salt mixtures for cooling or transport. If there is any question about the accuracy or reliability of mechanical refrigeration equipment, it should be checked frequently on a manual basis with an accurate thermometer.

12. If you need further information, call the emergency number listed below and ask to be connected with the Emergency Rescue Technician on call.

EMERGENCY PHONE #: (714) 736-1703

Thank you for your cooperation.

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ALCOR DISCUSSION GROUP, A.K.A. CRYONICS SOCIETY OF NEW YORK

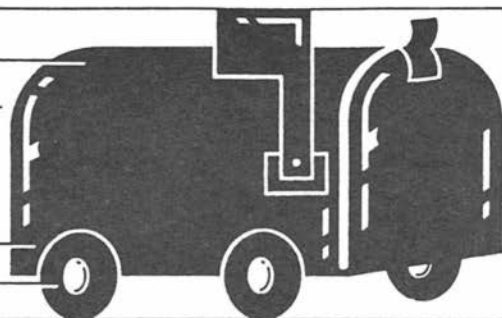
The New York Alcor discussion group continues to meet and to grow with seven members being in attendance during their second meeting on April 16th. Minutes from the first two meetings have arrived at Alcor within a few days of the meetings (oh, if only we could do as well!) and have proved fascinating reading.

The meetings are going to be held regularly on the 3rd Saturday of each month. A permanent meeting place has been established at the *Omnia Cafe*, 32-20 Broadway, Astoria, New York. The *Omnia* is near the intersection of 31st Street and Broadway, off the elevated train line. There is a train stop from Manhattan on the B and N trains. It is also very close to both the Grand Central Parkway and Brooklyn Queens Expressway. Anyone who has difficulty finding the cafe should call them at (718) 274-6650.



CSNY discussion group member Al Roca attended the recent Alcor *Life Against Death* conference and reported that the group is enthusiastic and that the *Omnia* is an excellent Greek restaurant where members can sit and talk at length, lingering over delightful Greek pastries. New Yorkers wishing more information about the Alcor CSNY group can contact Jerry Arthus at (516) 273-3201.

*Letters to The
Editors*



To The Editors,

I'd like to draw the attention of *Cryonics* readers to the remarkable "prophesies" contained in Robert A. Heinlein's novel *The Door Into Summer*, which I recently re-read after 20 years.

As Heinlein wrote *The Door Into Summer* in 1955 or 1956, he couldn't possibly have known of last Fall's big stock market crash. Yet on page 87 of the Doubleday (hardcover) edition, and in several other places as well, he refers to the "Panic of '87", a stock market crash essential to the story line.

But even more amazing are the following words occurring ten pages from the end of the book. The protagonist issues this specific instruction:

"...and make sure that you take your Sleep in the Riverside Sanctuary in Riverside..."

And he is talking about Riverside, California, and "Sleep" in this novel, among others of Heinlein's, means suspended animation!

This prophesy is so remarkable that one must wonder whether Alcor deliberately moved to Riverside to take advantage of it. Did you?

Lee Corbin
May 1, 1988
Cupertino, CA

Lee,

No. Actually we moved to Riverside to take advantage of the sympathetic Coroner...

* * *

Dear Editors,

In the several months since the events of December 11, 1988, at Riverside, California, I have not read in any of the publications of the other cryonics-immortality organizations a single congratulatory word or any real expression of support for Alcor during its time of crisis and glory.

Alcor has confronted the establishment in the final set-piece battle of the struggle, *and won!*

I suggest that all the immortalist-cryonics groups extend their moral and financial support to Alcor.

Gentlemen: History is sorting out the souls of men before its judgment seat; so be quick your heart to answer and be jubilant your feet.

If you believe, as I do, the sworn declarations of the scientists generated by Alcor in support of its defense of Dora Kent; then we have actually achieved the *prospect of immortality*.

When we are born we have the possibility, not the assurance of three-score and seven years. Now Alcor has given us the possibility, not the assurance of immortality.

Already, we are in our hearts immortal, the responsibility to assure immortality lies with each of us as individuals.

Curtis Henderson, Esq.
May 27, 1988
Sayville, L.I., New York

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LIFE Against DEATH
In San Francisco
by Saul Kent

On Labor Day weekend (Sept. 2-5, 1988) the *Alcor Life Extension Foundation* will be holding another **LIFE Against DEATH** conference at the Clarion Hotel at the San Francisco airport.

The conference, which will be under the direction of Saul Kent -- President of the *Life Extension Foundation*, will begin with an informal gathering at the Clarion Hotel on Friday, Sept. 2, from 7 PM to 10 PM.

Here is a preliminary program for the San Francisco **LIFE Against DEATH** conference:

* * *

SATURDAY, September 3

(9:00 -- 10:15 AM) -- **Reversing Aging** -- *Gary Gordon, M.D., Sacramento, California* -- How to become more vigorous through high-potency vitamins and minerals, chelation, and other therapies that will give you more energy, strengthen your bones, make your arteries more flexible, and protect you against heart disease, stroke, cancer, and diabetes.

(10:15 -- 10:45 AM) -- **Mid-Morning Break**

(10:45 -- 12 Noon) -- **The "Death" Hormone** -- *Robert Parker, Ph.D., San Francisco, California* -- The inside story of the remarkable anti-aging research conducted by Dr. W. Donner Denkla at the Roche Institute in New Jersey, by a scientist who worked with Denkla.

Why this research may be the key to a longer, healthier lifespan and what's being done now to pursue it today.

(12 Noon - 2 PM) -- **Lunch**

(2:00 - 3:15 PM) -- **Advances in Suspended Animation Research** -- *Jerry Leaf, Cryovita Laboratories, Riverside, CA and Mike Darwin, Alcor Life Extension Foundation, Riverside, CA* -- A discussion of the latest advances in hypothermia (Jerry Leaf) as well as exciting advances in a new method of cryopreservation called vitrification (Mike Darwin) that may enable us to achieve solid state suspended animation (perfect preservation of the human brain) in the foreseeable future.

(3:15 - 3:45 PM) -- **Midafternoon Break**

(3:45 - 5:00 PM) -- **Nanotechnology -- Implications For Life Extension** -- *Ralph C. Merkle, Ph.D., Sunnyvale, California* -- How incredibly tiny cell repair machines could enable us to reverse aging and bring cryonics patients back to life. The latest research in this fantastic new field by an innovative scientist whose work has been reported in *Time* magazine.

(5:00 - 7:00 PM) -- **Dinner**

(7:00 - 8:15 PM) -- **Survival And Recovery Of Memory** -- *Thomas Donaldson, Ph.D., Sunnyvale, California* -- What is memory? How is it stored and processed in the brain? What can we do about the decline in memory with advancing age? How much of our memories do we need to retain or recover to remain ourselves?

(8:45 -10:00 PM) -- **Immortalist Politics** -- *Keith Henson (Founder of the L-5 Society) and Arel Lucas, San Jose, California* -- A discussion of possible strategies to convince the people and politicians of the world to give up their allegiance to aging and death and join us in our struggle for physical immortality -- including letter writing, new legislation, political action committees, and a new political party.

* * *

SUNDAY, September 4

(9:00 - 10:15 AM) -- **The Cryonic Suspension Of Dora Kent** -- *Saul Kent, Mike Darwin, Jerry Leaf, and Carlos Mondragon* -- The inside story of the remarkable struggle (reported throughout the world) that developed between the *Alcor Life Extension Foundation* and the Coroner of Riverside County (Raymond L. Carrillo) over the fate of an 83-year-old woman who wanted a second chance at life, as told by her son and the leaders of *Alcor*.

(10:15 -- 10:45 AM) -- **Mid-Morning Break**

(10:45 - 12 Noon) -- **Cryonic Suspension -- How It Can Change Your Life!** -- *Mike Darwin, Alcor Life Extension Foundation* -- What is Cryonic Suspension? How good is the current technology used in Cryonic Suspension? What are your prospects for reanimation after Cryonic Suspension? What services does *Alcor* offer? Why is it critically important for you to sign up for Cryonic Suspension -- right now!

(12 Noon - 2:00 PM) -- **Lunch**

(2:00 - 5:00 PM) -- **Signing Up For Cryonic Suspension** -- The entire afternoon will be devoted to helping people sign up for Cryonic Suspension. The program will include several trained counselors to answer your questions and take you through the entire sign-up procedure one step at a time. Also in attendance will be attorney *Jim Bianchi* to explain, with the help of model trust documents, how you can attempt to "take your money with you" when you sign up for Cryonic Suspension.

(5:00 - 7:00 PM) -- **Dinner**

(7:00 - 8:00 PM) -- **Investing In Life Extension** -- *Saul Kent* -- How investing in new life extension companies may prove beneficial for your health and longevity as well as your pocketbook.

(8:00 - 10:00 PM) -- **My Personal Story** -- Members of the *Alcor Life Extension Foundation* tell about their **personal involvement** in the Life Extension Movement. When they first became involved. When and why they signed up for Cryonics. What it means to them.

* * *

MONDAY, September 5

(10:00 AM - 3:00 PM) -- **A Celebration Of Life** -- An informal gathering at the Clarion Hotel where conference participants can get to know each other better and enjoy each other's company. Food, drink, games, and entertainment will be provided -- including videotapes of recent documentaries on Cryonics and the Life Extension Sciences.

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REGISTRATION

Registration for the entire **LIFE Against DEATH** Labor Day weekend is *only* \$25 for members of the *Alcor Life Extension Foundation* or the *Life Extension Foundation*. Non-members pay \$50.

These registration fees apply only if you register by mail or by phone (with your credit card) prior to the Labor Day weekend. Members who register during the weekend will pay \$50; non-members will pay \$75.

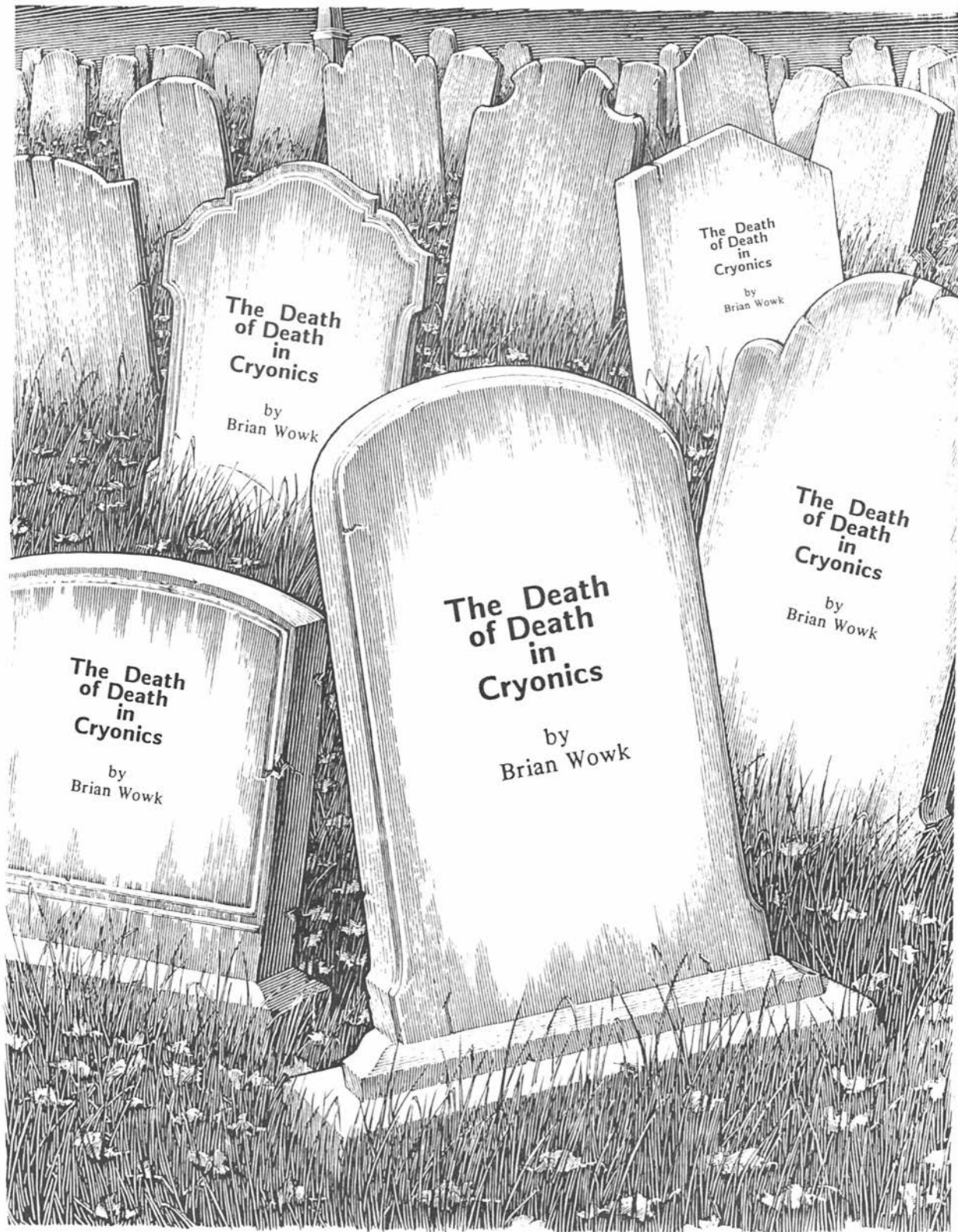
Registrants can register at the Clarion Hotel at the special low price of \$___ per night for either a single or a double room. To reserve your room at the Clarion Hotel just call: 1/415/692/6363.

Registrants for the **LIFE Against DEATH** Labor Day conference should send \$25 (if you're a member) or \$50 (if you're a non-member) to:

LIFE Against DEATH
Life Extension Foundation
2835 Hollywood Blvd.
Hollywood, FL 33020

or call: 1/800/841-LIFE

Please make checks or money orders payable to the **Life Extension Foundation**.



The Death
of Death
in
Cryonics

by
Brian Wowk

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"cry on'ics, n. the practice of freezing the body of a person who has just died in order to preserve it for possible resuscitation in the future, as when a cure for the disease that caused death has been found."

--- Webster's New Twentieth Century Dictionary

* * *

"CRUEL, CRAZY, 6£ A MONTH
TO COME BACK FROM THE DEAD."

--- front page headline from
the British tabloid, *SUNDAY MIRROR*.

* * *

This article is about a problem in cryonics. Perhaps *the* problem in cryonics. It is a problem which has dogged cryonics since its inception, and which has caused incalculable grief since then.

Unlike so many of the problems which confront us, I believe that it is a problem for which *cryonicists have only themselves to blame*.

The problem to which I refer is the perception of cryonics as the freezing of *dead* people, and all the corollaries that perception implies. How often have we struggled with impressions (be they conscious or unconscious) that cryonics is a *sacrilegious, ghoulish, or Frankenstein-like* practice when we try to explain the concept? How often have we had the impossible task of trying to overcome the notion that cryonics entails supernatural *resurrection* when we try to explain its scientific foundations? Problems of this sort (arguably the most serious public relations problems of cryonics) can all be traced back the *fundamental* problem of cryonics being perceived as the freezing and storing of *dead* people.

In this article I will propose a strategy for attacking this problem at its root. The strategy I will outline does not require any scientific breakthroughs, political lobbying, new laws, or the breaking of existing laws. And it will not require any change in cryonics *practice* at all. What it *will* require is a fundamental change in the way we *think* about cryonics, and especially in the way we attempt to *communicate* it to others.

The Problem

At first glance it may not seem that there is a solvable problem here at all. If cryonic suspension patients must be legally dead before we suspend them, and if once in suspension all metabolism has irreversibly (for the present) ceased, then are not suspension patients, at least in some limited sense, dead? My answer is *no* -- absolutely *not*. *Cryonic suspension patients are not dead in any meaningful sense of the word at all.*

It is my belief that a large share our public relations problems are directly attributable to confusion amongst *ourselves* about this issue. This article is an attempt to solve this problem by first thoroughly examining the concept of death, and then proposing some *consistent standards* for dealing with death in a cryonics context.



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Semantics

Words evolve to describe particular realities. When reality reveals itself to be something other than expected (as it often does), communication can become difficult. Problems of this sort can be remedied in two ways: the meaning of old words can be modified to suit new realities, and/or new words can be coined.

The word/reality synchronization problem cryonics faces today concerns the meaning of the word *death*. "Death" seems to have two broad meanings in people's minds. First: the cessation of brain function. Second: the irreversible loss of life. Historically, our medical limitations have been such that these two definitions were equivalent. This of course is not the case today (and it will be less so tomorrow), and so begins many a tale of cryonics PR woe.

Clearly the meaning of the word "death" must be better defined. In fact, there is no doubt that it *will* be better defined as advancing resuscitation technologies obsolete old meanings in ever more minds. Notwithstanding, *it is to our advantage as cryonicists to expedite this change as rapidly as possible.*

The meaning of the word "death" can be brought back into sync with reality in one of two ways. We can either retain death as meaning the loss of brain function, and accept that death can be reversed. Or we can reject death as meaning the loss of brain function, and retain death as meaning the irreversible loss of life. *It is the proposition of this article that the second strategy is far superior to the first.*

It is true that in most minds death is still strongly associated with the loss of brain function. However, I believe that death is *more* correctly identified with the irreversible loss of life. In other words, if the meaning of death must be clarified (and it must), it will be far easier to drop the association of death with loss of brain function than to introduce the idea that death itself can be reversed (with all the complex qualifications that statement entails).

Defining Death

I therefore propose the following firm definition of death.

Death: the absolute and irreversible loss of life, which occurs in human beings *when their brain structure is destroyed.*

Thus, *no one is ever dead until their brain structure is gone.* (Of course, death will not be quite so clear cut for future medicine; exactly how "much" a person dies will depend on how much brain structure is lost during injury. Nevertheless, retaining death as a "black and white" idea is fine as a first-order approximation.)

The value of defining death in this way is that it is completely independent of any particular level of medical technology. With this definition, dead *is* dead, now or ever.

New Terminology

Having better defined the criteria for death, it is necessary to introduce some new terms to fill the vacuum in the lexicon that has been created in the process. In particular, we need some medical terms to designate the vast expanse of time between cessation of heartbeat and breathing (the classic signs of death) and real death.

Conventional medicine currently uses the terms "clinical death" and "biological death" to fill this void.

However, I believe we need something more descriptive for cryonics purposes. For one thing, we urgently need to adopt a terminology that does not *in any way* suggest an element of death (and all the emotional and intellectual baggage such an association will invoke) when discussing conditions other than real death. Also, we need a terminology that will be applicable to conditions far beyond what physicians today would ordinarily consider as clinical death (such as biostasis, or protracted ischemia).

The traditional workhorse for this task in cryonics has been "deanimation". "Deanimation", however, has always struck me as vague, crude, contrived, and in fact like just another name for death. I would like to suggest some more precise alternatives. In particular, I would like to borrow some possible terms from the medical lexicon of the 22nd century.

With mature cell repair technology, future medicine will be able to recover anyone whose critical brain structure (brain structure encoding basic identity information) remains intact. Whether their heart has stopped, their brain function ceased, or indeed whether they are frozen solid *will not matter.* As long as critical brain structure is intact, patients will always be recoverable. In fact, it is likely that future medicine will adopt a rather innocuous, almost casual jargon to refer to many conditions we still equate with death today. Below is a table of some of these conditions in their various grammatical forms.

Condition or Event	Present Terminology	Future Terminology
clinical death or biological death	death, legal death	ischemic coma, ametabolic coma, or biostatic coma (when in biostasis)

What is the purpose of these definitions and redefinitions? Quite simply: *the elimination of misunderstanding*. Since cryonic suspension patients are being transported to distant future medicine, cryonics simply cannot be understood without viewing its patients and their conditions from the perspective of future medicine. And from such a perspective, *cryonic suspension patients are not dead*. There is therefore no reason ever to refer to cryonic suspension patients as dead (and bring upon ourselves all the suspicion, confusion, and metaphysical baggage that that word invokes).

Should we be saying, then, that cryonics patients are *alive*? No. I believe this would be unwise because "alive" is most often taken to mean the presence of integrated metabolism. Instead, it is perhaps best to say that cryonic suspension patients are in an *ametabolic or biostatic coma* (and as such deserve the same regard and care as any patient who is alive (i.e., metabolizing) but who is comatose and facing an uncertain prognosis).

Some may say that we are not justified in stating the status of our patients so confidently because cryonic suspension is not yet proven. I disagree. It is a convention of *present* medical practice that whenever the status of a comatose patient is in doubt, we treat them as viable patients until it becomes *certain* that recovery is impossible. Why should cryonics patients not enjoy the same benefit of the doubt?

Thus, by honestly and *consistently* characterizing the condition of cryonic suspension patients in the proper medical terms -- *the future's* -- we can significantly ameliorate one of the greatest marketing problems facing cryonics.

Defining Cryonics

There remains one serious impediment to implementing this strategy. Nowhere have I ever seen cryonics defined as anything other than the preservation of clinically, legally, or otherwise *dead* people -- *even by cryonicists themselves*. This is despite the fact that *defining* cryonics as freezing dead people (even people dead only by present standards) is *inherently absurd*.

Why? Because to *define* cryonics as freezing legally dead people means that cryonics -- the very *idea* of cryonics -- is to freeze people after legal death. Defining cryonics in this way means that *even given the legal opportunity to do otherwise* cryonicists are people who believe in waiting for an arbitrary, deleterious physical event (cardiac arrest and ensuing ischemia) before *even considering* freezing someone. Clearly this is not what cryonics is all about.

Sooner or later (probably later) there will come a time when cryopreservation (even by imperfect means) will be performed as an *elective medical procedure* for terminal patients. Will this no longer be cryonics? On the contrary, it would be *ideal* cryonics -- exactly the idea we had in mind all along. Indeed, cryonics (now or ever) is not about preserving *dead* patients, but about preserving *terminal* patients. The fact that we currently have to wait until cardiac arrest occurs naturally is merely an *artifact* of our present legal system, not an inherent component of cryonics.

Thus the final step to eliminating death as an element in cryonics is to correctly define cryonics as cryopreservation of *terminal* patients.

Where does all this leave us? I believe it leaves us with a pure, untainted vision of what cryonics is *really* all about. A vision of a technology not for "handling", or "dealing" with death, but for *avoiding* death. A technology for *living* people who want to *stay alive*.



Proposed Guidelines

Successfully communicating this vision will require overhauling many old ideas and habits we have when discussing cryonics. Listed below are just a few of the most important guidelines that will have to be followed to rid cryonics of its death-related imagery.

* Never use the single words "death", "dead", "die", or "died" to refer to any condition other than complete destruction of the brain. When we say someone is dead we should mean they are *dead* -- permanently and absolutely irrecoverable. All other uses of these words should be prefixed with appropriate qualification, such as "clinical" or "legal". (I, for one, am tired of seeing "the D word" constantly in quotation marks. Following this rule will make such ambiguities unnecessary.)

* Even better, *avoid* words like "death" as much as possible, *except* to emphasize that *death is what cryonics attempts to prevent*. (For example, as an alternative to "clinical death" use the terms "cardiac arrest", "ischemic coma", or "ametabolic coma".)

* Consistently emphasize that *the purpose of cryonics is to save the lives of dying patients*, not to "save" people who have already died. Legal restrictions prohibiting suspension until after *legal* death are a transient impediment to this goal to which we must adhere at present, but which *should not be depicted as inherent in cryonics*. There is no reason to characterize suspension patients as dead (quotations notwithstanding) *at any point* in a cryonics discussion.

* Rather than saying a patient to be suspended has just died, or "deanimated", just say they *require suspension*. (e.g. *Alcor* will not suspend you when you die, *Alcor* will suspend you when you *require suspension to keep you from dying*.)

* Rather than saying a patient in suspension is dead, just say they are *in suspension*. The term "in suspension" (with any luck) will gradually replace "being dead" as a social designation for cryonics patients. Similarly, the term "biostatic coma" should rightfully replace "death" as the medical designation of the condition of cryonics

patients.

* Finally, *never* depict cryonics as an "alternative" to burial and cremation. We are in the life-saving business, not the undertaking business. There is no reason to *ever* introduce negative, death-related imagery like interment methods when discussing cryonics. *Cryonics is a life-saving technology, not an interment procedure.* We are not "in competition" with undertakers any more than any other field of medicine that prevents people from dying is. (Imagine a physician who intends to place a brain-injured child in a drug-induced coma to improve the chance of recovery saying to the parents: "I believe you should consent to this procedure because even though recovery from the coma is a long-shot, his chances are still better than with burial or cremation.!!!!")

Presenting Cryonics

A typical presentation of cryonics today will begin by *defining* cryonics as the freezing of dead people (perhaps with "clinical" or "legal" qualification) and then, of necessity, engage in long explanation of why "dead is not dead". This approach is highly inefficient, suspicion-arousing, and most importantly misses the most important idea of cryonics.

Understanding contemporary cryonics practice requires appreciating two basic ideas. First, that freezing with present methods is probably not fatal (assuming access to future medicine). Second, that "death is a gradual process", or, more properly put, *ischemic injury following cardiac arrest is a gradual process* that probably does not kill patients for at least several hours (assuming access to future medicine). Of these two, *the first is by far the most important.*

If we can credibly argue that *a living, functioning person* might be able to survive freezing with present technology, and thawing with the future's, *we will have made the complete case for cryonics.* After making this case, we can examine how to implement cryonics to save today's terminal patients, and note the *present* legal problems of performing this procedure on a legally living patient. We *then* point out that this isn't a major concern because the legal declaration of death seldom means a person is dead from the perspective of future medicine (or even today's), so let's go ahead and do this procedure even after cardiac arrest.

The most important point here is that the second idea is *only relevant to our present legal environment*, and is not intrinsic to cryonics. *Ischemic injury* (so-called death) is only *a certain class of injury* that patients *may or may not have* when they are suspended.

Thus the reversibility of advanced clinical death (read: ischemic injury) is simply not the big cryonics issue it is usually made out to be. Ischemic injury is not inherent in the basic idea of cryonics. If anyone says to you, for example, that they don't think cryonics will work because legally dead people cannot be revived (as arbitrary as that belief is), then just turn the argument around and ask them why they aren't aggressively seeking legislation so we *won't have to wait until legal death* to suspend dying patients.

Of course, some readers may say this is all moot because as long as cryonic suspension looks like death, and cannot be implemented until after legal death, its identification with death is going to be prominent in people's minds. That may very well be the case, but it is not the point. The point is to *not concede to anyone's irrational premises*, and suffer the long-term consequences of doing so. For cryonics this means we should not be arguing that "dead is not dead", death is reversible, etc., but instead be arguing unflinchingly that *cryonic suspension patients are not dead, period.*

How successful this strategy will be remains to be seen. Yet I believe it rests on a truism: one that says that *people who disagree on the definition of death are inherently less crazy than people who claim they are going to bring the dead back to life.* If this is indeed indeed the case, we may be able to do away with some major communication problems.

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Meeting Schedules

Alcor business meetings are usually held on the first Sunday of the month. Guests are welcome. Unless otherwise noted, meetings start at 1 PM. For meeting directions, or if you get lost, call Alcor at (714) 736-1703 and page the technician on call.



The JULY meeting will be held at the home of:

(SUN, 10 JUL 1988) Brenda Combest
(SECOND SUNDAY) 8150 Rhea
Reseda, CA

The AUGUST meeting will be held at the home of:

(SUN, 7 AUG 1988) Bill Seidel and Candy Nash
10627 Youngworth
Culver City, CA

The SEPTEMBER meeting will be held at the home of:

(SUN, 11 SEP 1988) Paul Genteman
(SECOND SUNDAY) 535 S. Alexandria, #325
(PLEASE BRING CHAIRS) Los Angeles, CA

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The Alcor Cryonics Supper Club is an informal dinner get-together in the Greater Los Angeles area. These meetings are for newcomers and old-timers alike -- just an opportunity to get together and talk over what's happening in cryonics -- and the world!

If you've wanted an opportunity to ask lots of questions about cryonics, or if you just want a chance to spend some time with some interesting and nice people, pick a date and come! All dinners are scheduled for Sundays at 6:00 PM.

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